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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,116	01/24/2006	Akihisa Inoue	OGOSH44USA	3700
270	7590	10/11/2007	EXAMINER	
HOWSON AND HOWSON SUITE 210 501 OFFICE CENTER DRIVE FT WASHINGTON, PA 19034			ZHU, WEIPING	
			ART UNIT	PAPER NUMBER
			1793	
			MAIL DATE	DELIVERY MODE
			10/11/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<p align="center"><b>Office Action Summary</b></p>	<p><b>Application No.</b></p> <p>10/566,116</p>	<p><b>Applicant(s)</b></p> <p>INOUE ET AL.</p>	
	<p><b>Examiner</b></p> <p>Weiping Zhu</p>	<p><b>Art Unit</b></p> <p>1742</p>	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2,3,14,20 and 34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2,3,14,20 and 34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 27, 2007 has been entered.

### ***Status of Claims***

2. Claims 2, 3, 14, 20 and 34 are currently under examination wherein claim 34 is newly added in applicant's amendment filed on July 30, 2007.

### ***Response to Arguments***

3. Applicant's arguments filed on July 30, 2007 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 3, 14, 20 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fan et al. ("Deformation Behavior of Zr-Based Bulk Nanocrystalline

Amorphous Alloys", Physical Review B, volume 61, number 6, R3761-R3763, February 1, 2000-II) in view of Hu (US 6,096,640).

With respect to claims 2, 3, 14 and 20, Fan et al. discloses (abstract) a Zr-based bulk nanocrystalline amorphous alloy  $Zr_{53}Ti_5Ni_{10}Cu_{20}Al_{12}$  having an average grain size range of 2.0-2.5 nm, which overlaps the claimed ranges in the instant claim 2 and 3; having a three or more component system and more than 50 at% of Zr as claimed in the instant claim 2; and having at least one element selected from a group consisting of Cu, Ni and Al as claimed in the instant claims 14 and 20. The Zr-based bulk nanocrystalline amorphous alloy of Fan et al. is a bulk amorphous metallic glass satisfying the requirements of atomic radius difference and negative heat of mixing as claimed in the instant claim 2.

With respect to claim 2, Fan et al. do not specify the density of the alloy. However, the alloy of Fan et al. is made by casting the melt of the mixture of pure metals into a copper mould in vacuum (paragraph bridging the left and right columns, page R3761) instead of by powder metallurgy as claimed. It would have been obvious to one of ordinary skill in the art that the density of the alloy of Fan et al. would be very close to the theoretical density of the alloy, which would meet the claimed density limitation.

With respect to claim 2, Fan et al. do not disclose that the alloy is made by sintering gas-atomized powder as claimed. However, "sintering gas-atomized powder" is a process limitation in a product claim. Even though product claims are limited by and defined by the process, determination of patentability is based on the product itself.

Fan et al. disclose an amorphous metallic glass (abstract), which reasonably appear to be only slightly different than the claimed amorphous metallic glass in the instant claim 2. A rejection based on section 103 of the status is eminently fair and acceptable. See MPEP 2113.

With respect to claim 2, Fan et al. do not teach producing a sputtering target from the bulk amorphous metallic glass.

Hu ('640) discloses amorphous materials can be formed into sputtering targets (col. 5, line 60 - col. 6, line 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the bulk metallic glass produced in the process of Fan et al. into a sputtering target as disclosed by Hu ('640) in order to deposit on a substrate a layer of material of desired composition and structure as disclosed by Hu ('640) (col. 5, line 60 - col. 6, line 2).

With respect to claim 34, Fan et al. in view of Hu ('640) disclose that the average crystallite size of 2.0-2.5 nm is uniform entirely throughout the sputtering target as claimed (Fan et al., the paragraph bridging the left and right columns and Fig. 2, page R3762).

### ***Conclusion***

This Office action is made non-final. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Weiping Zhu whose telephone number is 571-272-6725. The examiner can normally be reached on 8:30-16:30 Monday to Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

WZ

10/1/2007

  
ROY KING  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700